

## Project Summary/Abstract

001026

Project Title: Installation of a pole mounted, dual axis 14Kw photovoltaic solar system for farm electrical needs

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### NEO ADV RENEW. PROJECT SUMMARY/ABSTRACT

The goal of this project is to install a pole mounted 14Kw dual axis, active tracking, photovoltaic solar energy system on the Fleischman Farm, located at 1407 CR 29, Tekamah, in Burt County, NE. This project can be online quickly in the third quarter of 2010, providing successful grant support.

Active tracking solar panels are a new technology designed to maximize electrical production by maintaining optimal solar incident angles to the panel. Dual axis systems can supply up to 8% more capacity over solar panels mounted in a fixed array. The annual power production estimation for this technology is 34.4MWh while the same panels in a fixed array would produce 24.6MWh annually. The clean power produced by the system will reduce GHG emissions by 24 metric tons/year.

The proposed system will feature a dual axis active tracking system that actively orients the panels to the sun from sunrise to sunset during the day as well as adjusting the seasonal tilt to optimize collection over the course of the year. Active tracking solar panels are clearly a new technology that fits well with the intent and goals of the Advanced Renewable Energy Grant. Currently, there are no active tracking solar panel systems in Nebraska.

The proposed 14Kw system is well matched to the annual electrical consumption of the farm and the farm electrical distribution system will also be consolidated so that the system can be applied to best effect. This system will not only feature the advanced dual axis technology, but will also utilize a hybridized interconnection approach that will include salient features of both on and off grid systems. This hybridized approach will safely allow the system to provide back up power to the farm should a grid outage occur. This will be another unique aspect to the project and is well within the capability of modern, UL listed and NEC approved inverter technology.

Active tracking solar technologies present a tremendous opportunity to increase renewable energy production by utilizing the rich solar resources available to Nebraska and this pilot project will be implemented in such a way as to foster replication across the state. A thorough case study will be a primary deliverable of the project that will serve to increase the likelihood of successful replication.

The proposed system is not sized to utilize the maximum allowable limits of LB 436, Nebraska interconnection policy, but is appropriately sized to replace the consumptive loads present at the Fleischman farm. The provision of support for this application will enable the Fleischman farm to completely offset their consumption, making it the largest solar powered operation in the state. The Fleischman farm currently raises livestock, primarily goats, and other value added products.

The technologies presented here represent the best available in the industry and will demonstrate the practicality of such renewable solutions for similar applications statewide. The system will serve to provide renewable power silently and with no required maintenance for at least two decades.